

REMARKS

Claims 14 and 16-35 are pending with claim 15 cancelled and claim 35 added by this paper.

Allowable Subject Matter

Applicants acknowledge that claim 29 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten into independent form to include all of the limitations of the base claim and any intervening claims. Applicants respectfully submit that claim 35 corresponds to claim 29 rewritten into independent form, including any intervening claims. Consequently, applicants respectfully submit that claim 29 should be indicated as allowed in the next paper from the Office.

Claim Rejection Under 35 U.S.C. § 112, Second Paragraph and Claim Amendments

Claim 31 stands rejected as allegedly being indefinite because the symbol "M" should be "m." Applicants have amended claim 31 to overcome this rejection, and respectfully submit that this rejection should be withdrawn. Applicants have also corrected a typographical error in claim 29. Applicants further note that these amendments do not narrow the scope of these claims.

Prior Art Rejections

Applicants note that claim 14 now includes the substantive features of claim 15. Consequently, applicants will address the rejections that are applicable in view of this amendment.

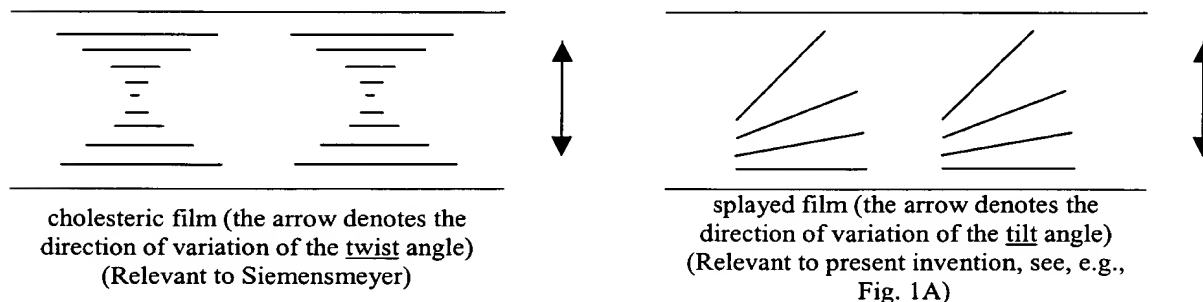
Claims 15-17 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 4,892,392 (Broer) in view of U.S. Patent No. 5,833,880 (Siemensmeyer). Applicants respectfully traverse these rejections.

Broer does not teach or suggest a film having a splayed structure (relevant to canceled claim 15), i.e., where the tilt angle varies in a direction perpendicular to the plane of the layer. Siemensmeyer discloses polymerizable mixtures which, when doped with a chiral compound, yield polymerizable materials or polymers having a cholesteric phase. However, Siemensmeyer neither teaches nor suggests polymer films with a splayed structure.

The angle variation in a cholesteric film as taught by Siemensmeyer is different from that in a splayed film of the present invention. In a cholesteric film the liquid crystal (LC) molecules are typically oriented parallel to the film plane in molecular sublayers, where their preferred orientation direction in a different sublayers creates a helical twist around an axis perpendicular to the film plane. In other words, the LC molecules are oriented parallel to the film plane, but at a twist angle relative to a plane that is perpendicular to the film plane. As a consequence, if the helical pitch is sufficiently short (e.g. from approx. 300 to 500 nm), the cholesteric film shows selective reflection of visible light.

In contrast, in a splayed film the LC molecules are oriented at a tilt angle relative to the film plane, where the tilt angle in different molecular sublayers has a different value, and is continuously increasing or decreasing in a direction perpendicular to the film plane. Therefore, a splayed film usually does not show selective reflection of light.

The orientation direction of LC molecules in a film with cholesteric and splayed structure is schematically illustrated below (in side view).



Therefore, the present invention is novel and not obvious over the cited references.

Claim 26 stands rejected as allegedly being unpatentable over U.S. Patent No. 5,762,823 (Hikmet). Applicants respectfully traverse this rejection, and respectfully refer to their comments submitted in their reply of June 20, 2003, which is incorporated herein by reference. Moreover, applicants respectfully submit that claim 26 depends from claim 14, and is also patentable because Hikmet fails to cure the deficiencies in Broer and Siemensmeyer, as discussed above. Consequently, applicants respectfully submit that the claims are patentable over the cited references.

In view of the above, favorable reconsideration is courteously requested. If there are any remaining issues which can be expedited by a telephone conference, the examiner is courteously invited to telephone counsel at the number indicated below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

James E. Ruland, Reg. No. 37,432
Attorney for Applicants

MILLEN, WHITE, ZELANO &
BRANIGAN, P.C.
Arlington Courthouse Plaza 1, Suite 1400
2200 Clarendon Boulevard
Arlington, Virginia 22201
Telephone: (703) 243-6333
Facsimile: (703) 243-6410

Attorney Docket No.: MERCK-1972 D1

Date: December 22, 2003

JER/slm:K:\merck\1972d1\Reply to 9-22-03 OA.doc